

Petroglyph initiated a secondary recovery water flood program twenty years ago in the Antelope Creek field. The water flood was designed to recover additional oil from an approximate 2,000 foot multi-pay interval in the Green River formation. To date 111 wells have been permitted and converted to injection to support the secondary water flood program. Over fifty oil and gas bearing zones have been identified, with four to ten zones completed in each well. All of the 300+ wells drilled were completed using hydraulic fracking.

The permitting and conversion of the wells to injectors was done in roughly three different intervals. In the initial period from 1995 through 1999 when 39 wells were converted to injection with an average MAIP of 2146 psi and average Frac Gradient of 0.934. The second period was from 2000 through 2005 when 36 wells were converted with an average MAIP of 1879 psi and average Frac Gradient of 0.935. And the final period when 36 wells were converted was from 2006 to 2007 with an average MAIP of 1633 psi and average Frac Gradient of 0.977.

Illustrated in Exhibit A in each subsequent interval the MAIP (maximum allowable injection pressure) as approved in the permits declined significantly. The first group of wells the MAIP was based on the fracture gradient as determined by using the instantaneous shut in pressure. The second and third groups do not appear to use actual fracture gradients to calculate MAIP.

The goal of setting a maximum allowable pressure is to prevent injection water from being forced out of formation into shallow ground water. Therefore only the shallowest zone injected into should be used to calculate MAIP. Using the fracture gradient of the shallowest to calculate the MAIP would support ground water protection.

A significant amount of fracture gradient data is available from ~300 wells, each of which was fracked.

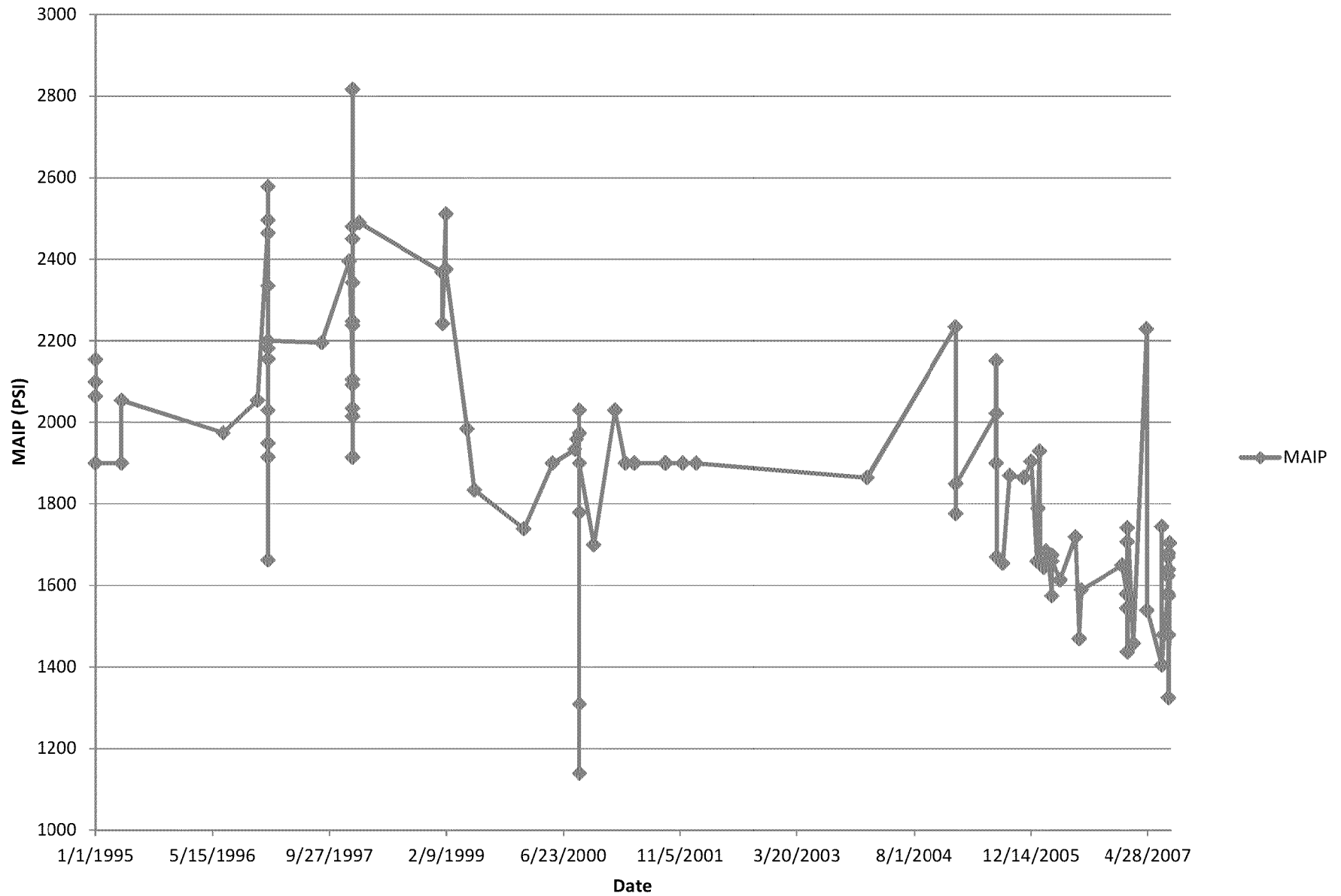
Exhibit B compares the permitted MAIP to a calculation of maximum injection pressure based on actual fracture gradients of the shallowest zone. In the second and third permitting periods significant differences are illustrated between the allowable MAIP and a calculated MAIP based on actual fracture gradient.

Another illustration is exhibit C which is a map, color coded by MAIP, showing the low MAIP wells are next to Higher MAIP wells. This illustrates the varying MAIP's are not based on location in the field.

Petroglyph's plan is to initiate a fourth round of well conversions to injectors and would like to understand how the MAIP will be calculated for the new conversions. Petroglyph is proposing that the calculation be based on fracture gradient of the shallowest zone. Petroglyph is also requesting that the MAIP of wells in second and third groups be recalculated so the whole field has the same basis of calculation.

where is 1.015 for the entire field and ISIP/Depth both refer to the top perforations.

Maximum Allowable Injection Pressure Over Time



| Well Name | First Date of Injection | Year | Act MAIP | Top Perf | EPA Frac | | PGEI Calc | | | |
|-----------|-------------------------|------|----------|----------|----------|------------------|-----------|-----------|-------|-----------|
| | | | | | Zone | Grad(ass ume SG) | ISIP | Frac Grad | SG | Calc MAIP |
| 08-04 | 1/1/1995 | 1995 | 2065 | 3974 | B06.2 | 0.96 | 2100 | 0.97586 | 1.015 | 2131.5 |
| 08-06 | 1/1/1995 | 1995 | 2155 | 4556 | C05.2 | 0.91 | 1780 | 0.83605 | 1.015 | 1806.7 |
| 18-02 | 1/1/1995 | 1995 | 1900 | 3972 | B06.2 | 0.92 | N/A | #VALUE! | 1.015 | #VALUE! |
| 18-09 | 1/1/1995 | 1995 | 2100 | 4442 | C04 | 0.91 | 2200 | 0.9422 | 1.015 | 2233 |
| 05-10 | 4/21/1995 | 1995 | 2055 | 4426 | B08.1 | 0.90 | 1620 | 0.811 | 1.015 | 1644.3 |
| 29-09 | 4/21/1995 | 1995 | 1900 | 4773 | C06 | 0.84 | 1834 | 0.8295 | 1.015 | 1861.51 |
| 04-01 | 6/30/1996 | 1996 | 1975 | 5082 | C08.2 | 0.83 | 1700 | 0.77903 | 1.015 | 1725.5 |
| 05-08 | 11/25/1996 | 1996 | 2055 | 4283 | B06.2 | 0.92 | 2135 | 0.94545 | 1.015 | 2167.02 |
| 05-16 | 1/8/1997 | 1997 | 1950 | 4816 | C05.2 | 0.84 | 2070 | 0.87576 | 1.015 | 2101.0 |
| 08-07 | 1/8/1997 | 1997 | 2579 | 4399 | B10.2 | 1.03 | 2016 | 0.90466 | 1.015 | 2046.24 |
| 18-08 | 1/8/1997 | 1997 | 2030 | 4384 | C04 | 0.90 | 2377 | 0.98983 | 1.015 | 2412.655 |
| 18-15 | 1/8/1997 | 1997 | 2156 | 3862 | B06.3 | 1.00 | 2010 | 0.96776 | 1.015 | 2040.15 |
| 19-03 | 1/8/1997 | 1997 | 2465 | 4078 | B11 | 1.04 | 2906 | 1.16279 | 1.015 | 2949.59 |
| 21-06 | 1/8/1997 | 1997 | 2183 | 4698 | C04 | 0.90 | 1820 | 0.8327 | 1.015 | 1847.3 |
| 28-03 | 1/8/1997 | 1997 | 2336 | 4634 | C04 | 0.94 | 2000 | 0.87756 | 1.015 | 2030 |
| 28-06 | 1/8/1997 | 1997 | 1663 | 4659 | C04 | 0.80 | 1850 | 0.84253 | 1.015 | 1877.75 |
| 29-08A | 1/8/1997 | 1997 | 1915 | 4678 | C05 | 0.85 | 2910 | 1.07089 | 1.015 | 2953.65 |
| 30-01 | 1/8/1997 | 1997 | 2497 | 4830 | C06 | 0.96 | 2572 | 0.97999 | 1.015 | 2610.58 |
| 30-08 | 1/8/1997 | 1997 | 2201 | 4714 | C05 | 0.91 | 2201 | 0.91341 | 1.015 | 2234.015 |
| 21-11 | 8/23/1997 | 1997 | 2196 | 4652 | C04 | 0.91 | 2197 | 0.91885 | 1.015 | 2229.955 |
| 16-11 | 12/19/1997 | 1997 | 2396 | 4546 | B11 | 0.97 | N/A | #VALUE! | 1.015 | #VALUE! |
| 04-02 | 1/2/1998 | 1998 | 2344 | 5360 | D07 | 0.88 | 2330 | 0.88072 | 1.015 | 2364.95 |
| 04-05 | 1/2/1998 | 1998 | 1915 | 4328 | B06.2 | 0.88 | 2078 | 0.92683 | 1.015 | 2109.17 |
| 07-09 | 1/2/1998 | 1998 | 2817 | 4162 | B08.1 | 1.12 | 3556 | 1.30671 | 1.015 | 3609.34 |
| 07-16 | 1/2/1998 | 1998 | 2239 | 3975 | B06 | 1.00 | 2860 | 1.16978 | 1.015 | 2902.9 |
| 16-02 | 1/2/1998 | 1998 | 2481 | 4535 | B11 | 0.99 | 2644 | 1.03126 | 1.015 | 2683.66 |
| 16-08 | 1/2/1998 | 1998 | 2035 | 4552 | B11 | 0.89 | 1989 | 0.883 | 1.015 | 2018.835 |
| 16-16 | 1/2/1998 | 1998 | 2093 | 4481 | B10 | 0.91 | 1900 | 0.86987 | 1.015 | 1928.5 |
| 21-03 | 1/2/1998 | 1998 | 2451 | 4714 | C04 | 0.96 | 2422 | 0.96099 | 1.015 | 2458.33 |
| 28-05A | 1/2/1998 | 1998 | 2106 | 4724 | C05.2 | 0.89 | 1996 | 0.86836 | 1.015 | 2025.94 |
| 29-06 | 1/2/1998 | 1998 | 2015 | 4314 | B08.1 | 0.91 | 1509 | 0.79453 | 1.015 | 1531.635 |
| 33-10D3 | 1/2/1998 | 1998 | 2248 | 4474 | B08 | 0.94 | 2800 | 1.07472 | 1.015 | 2842 |
| 18-13 | 1/30/1998 | 1998 | 2490 | 3927 | B06.1 | 1.07 | 2616 | 1.11564 | 1.015 | 2655.24 |
| 33-14 D3 | 1/22/1999 | 1999 | 2369 | 4330 | B06.2 | 0.99 | 2840 | 1.10522 | 1.015 | 2882.6 |
| 18-05 | 1/23/1999 | 1999 | 2243 | 4308 | B10 | 0.96 | 2335 | 0.98964 | 1.015 | 2370.025 |
| 33-08D3 | 2/6/1999 | 1999 | 2376 | 4343 | B06.2 | 0.99 | 2100 | 0.93028 | 1.015 | 2131.5 |
| 33-16D3 | 2/6/1999 | 1999 | 2512 | 4592 | B11 | 0.99 | 2550 | 1.00314 | 1.015 | 2588.25 |
| 19-07 | 5/7/1999 | 1999 | 1985 | 4440 | C03.2 | 0.89 | 2216 | 0.94608 | 1.015 | 2249.24 |
| 19-01 | 6/7/1999 | 1999 | 1835 | 4035 | B05 | 0.89 | N/A | #VALUE! | 1.015 | #VALUE! |
| 19-13 | 1/5/2000 | 2000 | 1740 | 3942 | B10.1 | 0.88 | 2852 | 1.17384 | 1.015 | 2894.78 |
| 29-12 | 5/7/2000 | 2000 | 1900 | 4600 | C04 | 0.85 | 2135 | 0.91059 | 1.015 | 2167.025 |
| 19-11 | 8/11/2000 | 2000 | 1935 | 4421 | C06 | 0.88 | 2398 | 0.99004 | 1.015 | 2433.97 |
| 18-11 | 8/19/2000 | 2000 | 1960 | 4736 | C06 | 0.85 | 2084 | 0.88613 | 1.015 | 2115.26 |
| 07-14 | 8/31/2000 | 2000 | 1140 | 4103 | B05 | 0.72 | 2200 | 0.98373 | 1.015 | 2233 |
| 16-04 | 8/31/2000 | 2000 | 1900 | 4484 | B10.1 | 0.86 | 2190 | 0.93522 | 1.015 | 2222.85 |
| 16-10 | 8/31/2000 | 2000 | 2030 | 4542 | B11 | 0.89 | 2285 | 0.95012 | 1.015 | 2319.275 |
| 16-12 | 8/31/2000 | 2000 | 1900 | 4261 | B06.2 | 0.89 | 2067 | 0.93187 | 1.015 | 2098.005 |
| 19-09 | 8/31/2000 | 2000 | 1900 | 4736 | C05 | 0.84 | 2243 | 0.92021 | 1.015 | 2276.645 |
| 19-15 | 8/31/2000 | 2000 | 1900 | 4475 | B10 | 0.86 | 2188 | 0.93577 | 1.015 | 2220.82 |
| 20-13 | 8/31/2000 | 2000 | 1974 | 4416 | B10.1 | 0.89 | 2372 | 0.98469 | 1.015 | 2407.58 |
| 21-15 | 8/31/2000 | 2000 | 1900 | 4638 | C04 | 0.85 | 2196 | 0.92008 | 1.015 | 2228.94 |
| 29-16 | 8/31/2000 | 2000 | 1780 | 4619 | C04 | 0.82 | 2150 | 0.91195 | 1.015 | 2182.25 |
| 30-10 | 8/31/2000 | 2000 | 1310 | 4140 | B05 | 0.76 | 3154 | 1.21276 | 1.015 | 3201.31 |
| 30-14 | 8/31/2000 | 2000 | 1900 | 4385 | B10.1 | 0.87 | 3276 | 1.19779 | 1.015 | 3325.14 |
| 30-16 | 8/31/2000 | 2000 | 1900 | 4324 | B08.1 | 0.88 | 3162 | 1.18173 | 1.015 | 3209.43 |
| 29-03 | 11/1/2000 | 2000 | 1700 | 4064 | B01 | 0.86 | 1759 | 0.87881 | 1.015 | 1785.385 |
| 16-06 | 1/31/2001 | 2001 | 2030 | 4511 | B11 | 0.89 | 2190 | 0.93226 | 1.015 | 2222.85 |
| 19-05 | 3/16/2001 | 2001 | 1900 | 4102 | B10.1 | 0.90 | 2546 | 1.06948 | 1.015 | 2584.19 |
| 29-01 | 4/24/2001 | 2001 | 1900 | 5014 | D03 | 0.82 | 2840 | 1.01441 | 1.015 | 2882.6 |
| 04-11 | 8/31/2001 | 2001 | 1900 | 4383 | B07 | 0.87 | 2600 | 1.04159 | 1.015 | 2639 |
| 04-13 | 9/5/2001 | 2001 | 1900 | 4286 | B06.2 | 0.88 | 2100 | 0.93681 | 1.015 | 2131.5 |
| 29-14 | 11/16/2001 | 2001 | 1900 | 4005 | B02 | 0.91 | 2420 | 1.0528 | 1.015 | 2456.3 |
| 15-12 | 1/14/2002 | 2002 | 1900 | 4328 | B06.1 | 0.88 | N/A | #VALUE! | 1.015 | #VALUE! |

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|-------|------------|------|------|------|-------|------|------|---------|-------|----------|
| 21-05 | 1/12/2004 | 2004 | 1865 | 4462 | B11 | 0.86 | 1890 | 0.86943 | 1.015 | 1918.35 |
| 21-02 | 1/25/2005 | 2005 | 2235 | 4694 | C04 | 0.92 | 2302 | 0.93726 | 1.015 | 2336.53 |
| 21-04 | 1/28/2005 | 2005 | 1777 | 4741 | C05 | 0.81 | 2021 | 0.87217 | 1.015 | 2051.315 |
| 21-12 | 1/28/2005 | 2005 | 1850 | 4670 | C04 | 0.84 | 2291 | 0.93743 | 1.015 | 2325.365 |
| 07-11 | 7/18/2005 | 2005 | 1900 | 4036 | B06.1 | 0.91 | 1924 | 0.92336 | 1.015 | 1952.86 |
| 30-09 | 7/18/2005 | 2005 | 2152 | 4346 | B08.2 | 0.93 | 1700 | 0.83653 | 1.015 | 1725.5 |
| 30-15 | 7/18/2005 | 2005 | 2023 | 3960 | B00 | 0.95 | N/A | #VALUE! | 1.015 | #VALUE! |
| 29-05 | 7/22/2005 | 2005 | 1670 | 4226 | B06 | 0.83 | 2080 | 0.93907 | 1.015 | 2111.2 |
| 29-04 | 8/16/2005 | 2005 | 1655 | 4574 | C02 | 0.80 | 3061 | 1.11875 | 1.015 | 3106.915 |
| 21-13 | 9/14/2005 | 2005 | 1870 | 5107 | D03.2 | 0.81 | 2500 | 0.93636 | 1.015 | 2537.5 |
| 16-09 | 11/14/2005 | 2005 | 1865 | 4778 | C04 | 0.83 | 2351 | 0.93892 | 1.015 | 2386.265 |
| 16-03 | 12/15/2005 | 2005 | 1905 | 4540 | B11 | 0.86 | 2530 | 1.00512 | 1.015 | 2567.95 |
| 16-01 | 1/9/2006 | 2006 | 1660 | 4547 | B11 | 0.80 | 2796 | 1.06363 | 1.015 | 2837.94 |
| 16-13 | 1/13/2006 | 2006 | 1790 | 4790 | C05 | 0.81 | 1930 | 0.84846 | 1.015 | 1958.95 |
| 16-15 | 1/19/2006 | 2006 | 1930 | 4543 | B11 | 0.86 | 2266 | 0.94577 | 1.015 | 2299.99 |
| 16-07 | 1/24/2006 | 2006 | 1658 | 4528 | B11 | 0.81 | 2240 | 0.94162 | 1.015 | 2273.6 |
| 16-14 | 2/6/2006 | 2006 | 1645 | 4485 | B11 | 0.81 | 2030 | 0.8989 | 1.015 | 2060.45 |
| 21-14 | 2/17/2006 | 2006 | 1685 | 4628 | C04 | 0.80 | 2110 | 0.90225 | 1.015 | 2141.65 |
| 09-15 | 2/27/2006 | 2006 | 1660 | 4543 | B11 | 0.80 | 1980 | 0.88187 | 1.015 | 2009.7 |
| 17-01 | 3/13/2006 | 2006 | 1660 | 4542 | B11 | 0.80 | 2100 | 0.90878 | 1.015 | 2131.5 |
| 18-03 | 3/13/2006 | 2006 | 1675 | 4580 | C04 | 0.81 | 3100 | 1.1265 | 1.015 | 3146.5 |
| 18-06 | 3/13/2006 | 2006 | 1575 | 4312 | B10 | 0.80 | 2524 | 1.03362 | 1.015 | 2561.86 |
| 16-05 | 4/17/2006 | 2006 | 1614 | 4408 | B08.1 | 0.81 | 2841 | 1.09367 | 1.015 | 2883.615 |
| 18-07 | 6/22/2006 | 2006 | 1720 | 4698 | C08.2 | 0.81 | 2357 | 0.94872 | 1.015 | 2392.355 |
| 18-01 | 7/8/2006 | 2006 | 1470 | 4026 | B07.2 | 0.80 | N/A | #VALUE! | 1.015 | #VALUE! |
| 18-12 | 7/17/2006 | 2006 | 1590 | 4351 | B10 | 0.80 | 2150 | 0.94105 | 1.015 | 2182.25 |
| 18-10 | 1/10/2007 | 2007 | 1650 | 4519 | C06 | 0.80 | 2174 | 0.92779 | 1.015 | 2206.61 |
| 19-16 | 1/30/2007 | 2007 | 1580 | 4332 | B07.2 | 0.80 | 2900 | 1.11897 | 1.015 | 2943.5 |
| 20-14 | 1/31/2007 | 2007 | 1545 | 4226 | B06.3 | 0.81 | 2212 | 0.97077 | 1.015 | 2245.18 |
| 21-07 | 2/1/2007 | 2007 | 1708 | 4666 | C04 | 0.81 | N/A | #VALUE! | 1.015 | #VALUE! |
| 21-10 | 2/1/2007 | 2007 | 1437 | 4650 | C04 | 0.75 | 1972 | 0.86994 | 1.015 | 2001.58 |
| 30-07 | 2/2/2007 | 2007 | 1742 | 4635 | C04 | 0.82 | N/A | #VALUE! | 1.015 | #VALUE! |
| 29-13 | 2/26/2007 | 2007 | 1458 | 4016 | B02 | 0.80 | 2398 | 1.04556 | 1.015 | 2433.97 |
| 03-14 | 4/23/2007 | 2007 | 2230 | 4314 | B05 | 0.96 | 2250 | 0.96888 | 1.015 | 2283.75 |
| 29-11 | 4/25/2007 | 2007 | 1540 | 4246 | B08.1 | 0.80 | 3250 | 1.2164 | 1.015 | 3298.75 |
| 18-14 | 6/27/2007 | 2007 | 1405 | 3873 | B06.2 | 0.80 | 1877 | 0.9314 | 1.015 | 1905.155 |
| 28-11 | 6/27/2007 | 2007 | 1745 | 4809 | C08.1 | 0.80 | 2001 | 0.86183 | 1.015 | 2031.015 |
| 29-10 | 6/27/2007 | 2007 | 1405 | 4338 | B10 | 0.76 | 2375 | 0.99519 | 1.015 | 2410.625 |
| 07-15 | 7/4/2007 | 2007 | 1480 | 4080 | B06.1 | 0.80 | 2864 | 1.15199 | 1.015 | 2906.96 |
| 18-16 | 7/23/2007 | 2007 | 1580 | 4354 | B12 | 0.80 | 2405 | 1.00015 | 1.015 | 2441.075 |
| 28-04 | 7/23/2007 | 2007 | 1670 | 4612 | C05 | 0.80 | 2330 | 0.95228 | 1.015 | 2364.95 |
| 30-02 | 7/23/2007 | 2007 | 1625 | 4478 | B11 | 0.80 | N/A | #VALUE! | 1.015 | #VALUE! |
| 20-02 | 7/25/2007 | 2007 | 1640 | 4527 | B11 | 0.80 | 2300 | 0.95518 | 1.015 | 2334.5 |
| 29-07 | 7/25/2007 | 2007 | 1480 | 4080 | B05 | 0.80 | 2110 | 0.95491 | 1.005 | 2120.55 |
| 29-08 | 7/25/2007 | 2007 | 1680 | 4630 | C05 | 0.80 | 2000 | 0.87794 | 1.015 | 2030 |
| 29-15 | 7/25/2007 | 2007 | 1575 | 4341 | B10 | 0.80 | 2498 | 1.02357 | 1.015 | 2535.47 |
| 29-02 | 7/26/2007 | 2007 | 1325 | 4511 | B12 | 0.73 | 2864 | 1.08391 | 1.015 | 2906.96 |
| 28-05 | 8/1/2007 | 2007 | 1705 | 4708 | C05.2 | 0.80 | 2230 | 0.92026 | 1.015 | 2263.45 |

